Woodchip boiler

POWERCHIP/POWERCORN 50 Special

Operating Instructions/System Log Book

PH-A-00-00-00-01-BAEN

EN-B30-009-V10b-0711-V3.0 (Taurus)

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GUNTAMATIC

Information on this documentation

Please read through this documentation carefully.

It is intended as a reference document and contains important information on the design, safety, operation, maintenance and care of your heating system.

We are always looking to improve our products and documentation. Any ideas and suggestions you may have will be gratefully received.

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It is important that you pay particular attention to the safety issues highlighted in the text by these symbols.

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1 Introduction

BS-01-00-00-00-01-BAEN

You have made an excellent choice with the purchase of your GUNTAMATIC boiler.

It is a product of many year's experience in boiler-making and it is our sincere wish that your heating system provides you with many years of satisfaction.

These instructions are intended as a guide to operation and maintenance. Even the best boiler cannot operate effectively without proper care and maintenance, so please read through these instructions carefully and have your appliance commissioned by an engineer authorised by GUNTAMATIC. Most importantly, you should follow the safety instructions in Section 2.

1.1 Brief description

PH-01-01-00-00-01-BAEN

The POWERCHIP is a modern biomass boiler available with power outputs of 30, 50, 75 or 100 kW. The fuel is fed to the boiler from a fuel storeroom by an auger-type conveyor with fuel agitator.

1.2 Type approval

BS-01-02-00-00-01-BAEN

The boiler is designed as a Class 3 appliance as defined by the draft standard ÖNORM EN 303-5 (CEN/TC7/WG 1 – Doc. N 36-D) of 15/12/1996 and the agreement of the [Austrian] Federal States according to Art. 15a BVG, in accordance with the Austrian fire safety regulations, safety systems, CE and on safety measures for small combustion heating systems and the combustion heating system approval regulations (LGBl. 33/1992) of the Federal State of Steiermark. The original type approval certificates are available for inspection at the manufacturer's offices.

1.3 Further information

BS-01-03-00-00-01-BAEN

The documentation consists of the following documents:

- Planning Document
- Installation instructions
- Operating instructions

If you have any questions, please consult our Customer Support.

2 Important notes

BS-02-00-00-00-01-BAEN

Your boiler has been designed and produced in accordance with the latest technical advances and all applicable safety regulations. Nevertheless incorrect operation, the use of unapproved fuels or the failure to carry out necessary maintenance and repairs can result in personal injury or damage to property. You will avoid dangerous situations by only using the boiler for the purpose for which it was designed and by operating, cleaning and maintaining it correctly. Only start up the heating system when it is in perfectly safe working order.

2.1 Intended use

BS-02-01-00-00-01-BAEN

The boiler is designed for heating central heating water and for use as a central heating boiler.

Caution:

Do not use the boiler to burn rubbish!

Burning rubbish will cause extensive corrosion and consequently to a substantial reduction in the service life of the boiler.

2.2 Operating the heating system

BS-02-02-00-00-01-BAEN

The heating system may only be operated and cleaned by demonstrably trained persons (as per check-list). Children, unauthorised persons or persons with a mental impairment may only enter the boiler room under the supervision of an authorised person. When unsupervised, the boiler room/fuel store must be locked and the key kept in a place where it is inaccessible to such persons.

Caution: even if the opposite is requested, servicing and repair work may only be carried out by authorised specialists.

2.3 Guarantee and liability

BS-02-03-00-00-01-BAEN

Guarantee and liability claims for personal injury and/or property damage are inadmissible if they are attributable to one or more of the following causes:

- use of the boiler for purposes other than that intended
- failure to follow the instructions, guidance and safety precautions given in the documentation
- incorrect commissioning, operation, maintenance or repair of the boiler
- operation of the boiler when safety systems are inoperative
- unauthorised modifications

2.4 Safety instructions

BS-02-04-00-00-01-BAEN

To prevent accidents, small children should not be allowed into the boiler room or the fuel storeroom. Please follow the safety instructions below. By doing so, you will protect yourself and prevent damage to your heating system.

Power switch

BS-02-04-00-01-01-BAEN

Note: The power switch must remain switched on at all times and may only be switched off when the system is not in operation.

Mains plug

BS-02-04-00-02-01-BAEN

Danger: **Risk of fatal injury from electric shock.**

The mains power supply is brought to the boiler via the plug marked Mains. That plug and other components of the system remain live even when the Power switch on the control panel is switched off.

Repair work

BS-02-04-00-03-01-BAEN

Danger: **Repair work may only be carried out by authorised technicians.**

Touching live electrical components can cause fatal injury.

Even when the Power switch is "OFF" some components of the system are still live.

Therefore, when carrying out repair work it is imperative that the power supply to the heating system is disconnected by means of the "mains plug" or a circuit breaker.

In an emergency: In the event of electric shock, disconnect the power supply immediately.
Administer first aid. Call the duty doctor.

Fault rectification

BS-02-04-00-04-01-BAEN

Note: If faults occur, the causes must first be eliminated on the basis of the information message on the display (F0...) before resuming operation by means of the "Quit" button.

Unauthorised modifications

BS-02-04-00-05-01-BAEN

Note: do not make any unplanned changes to the settings or any modifications to the heating system.

Loss of guarantee entitlement

Servicing work

BS-02-04-00-06-01-BAEN

Note: Service the boiler regularly or make use of our Customer Service.

Emptying ash

BS-02-04-00-07-01-BAEN

Danger: **Glowing embers can cause fires.**

Only remove the ash from the boiler or store it in non-combustible containers.

Boiler cleaning

BS-02-04-00-08-01-BAEN

Caution: **Touching hot components can cause skin burns.**

The boiler must only be cleaned when it is cold (flue gas temperature < 50°C)

Flue gas fan

BS-02-04-00-09-01-BAEN

Danger: **Risk of injury from rotating parts.**

The fan must only be removed when it is disconnected from the power supply (unplugged).

Gaskets

BS-02-04-00-10-01-BAEN

Danger: **Risk of gas poisoning.**

It is possible that flue gas could escape if gaskets are damaged.

Have defective gaskets replaced by an authorised technician.

In an emergency: Take the person affected into the open air immediately. Call the duty doctor.

Air supply

BS-02-04-00-11-01-BAEN

Danger: **Risk of suffocation**

Inadequate air supply can be fatal.

Make sure there is an adequate supply of air.

Note: If there is more than one boiler in the same room, a greater supply of fresh air must be provided.

Flue draught regulator

BS-02-04-00-12-01-BAEN

Danger: **Risk of detonation.**

A flue draught regulator with a pressure surge compensator is an essential requirement.

Safety clearances

BS-02-04-00-13-01-BAEN

Danger: **Fire risk.**

Do not store any flammable items in the close vicinity of the boiler.

Follow the local regulations.

Entering the storeroom

PH-02-04-00-01-01-BAEN

Danger: **Risk of injury!**

Only enter the store room when the system is switched off. Always shut off the power supply before entering.

Affix a sign to the storeroom door.
Keep the storeroom doors locked.

Filling the storeroom

PH-02-04-00-02-01-BAEN

Danger: **Combustible gases in storeroom!**

When filling the fuel storeroom from a tanker truck or using a pressure-filling system, it is imperative that the boiler is shut down.

If this rule is ignored, flammable and poisonous gases can be drawn into the storeroom.

Protection against freezing

BS-02-04-00-16-01-BAEN

Note: **Anti-freeze function.**

The system can only perform its freezing prevention function if sufficient fuel is available and there are no faults.

Emergency fire extinguishing system

PH-02-04-00-03-01-BAEN

Note: **Contact our Customer Service.**

If the emergency fire extinguishing system has been triggered, it is always due to a fault in the heating system.

Fire extinguisher

BS-02-04-00-17-01-BAEN

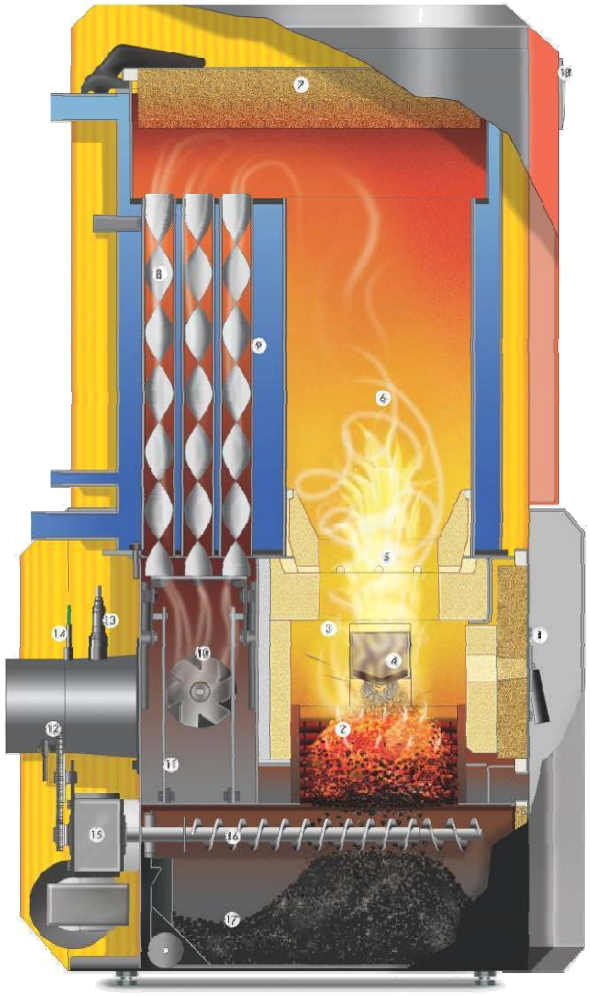
Note: **Provide a fire extinguisher.**

There must be a fire extinguisher placed immediately outside the boiler room door.

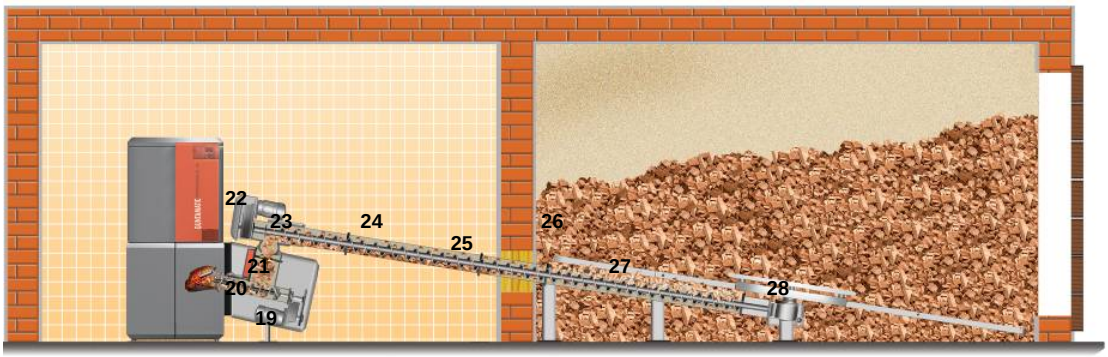
3 System components

3.1 Cutaway diagram of POWERCHIP

PH-03-01-00-00-01-BAEN



1.) Firebox door
2.) Stepped grate – primary air
3.) Combustion chamber
4.) Fuel spout
5.) Swirl jet – secondary air
6.) Reaction tube
7.) Inspection cover
8.) Helix baffles
9.) Tube-type heat exchanger
10.) Flue draught fan
11.) Heat exchanger cleaning mechanism
12.) Flue pipe
13.) Oxygen sensor
14.) Flue gas sensor
15.) Grate cleaner motor
16.) Ash auger
17.) Wheeled ash box
18.) Menu-based controller
19.) Drive motor (stoker)
20.) Stoker unit
21.) Burn-back prevention device
Fire safety flap with positioner motor - **Required in all countries**
22.) Drive motor (fuel outfeed)
23.) Sprinkler in outfeed auger enclosure - **Required in all countries**
24.) Outfeed auger
25.) Temperature monitor/fuel storeroom - **Required in Austria**
26.) Manually operated fire extinguishing facility - **Required in Austria**
27.) Agitator arms
28.) Agitator



4 Safety systems

BS-04-00-00-00-01-BAEN

To prevent the boiler overheating, the controller reduces the heat output in certain situations. If the boiler still threatens to overheat, the controller responds according to a set of defined safety levels.

Safety level 1

BS-04-00-00-01-01-BAEN

15°C above specified temperature
The drive motor stops the fuel feed system and the flue draught fan shuts down.

Safety level 2

PH-04-00-00-01-01-BAEN

Boiler temperature above 90°C
All heating pumps and the cylinder charging pump are switched on to carry heat away from the boiler.

Safety level 3

BS-04-00-00-01-03-BAEN

Boiler temperature above 100°C
The STL (safety temperature limiter) trips and switches all boiler control functions off while the heating circulation pumps continue to run. The system remains switched off even if the boiler temperature drops back below 90 °C. The system must not be started up again until any faults have been rectified and the boiler has been checked.

Power failure

BS-04-00-00-04-01-BAEN

The controller, the flue draught fan and all circulation pumps switch off due to lack of electricity if there is a power cut. The glowing fuel bed on the grate continues burn with the natural draught of the flue. As this operating mode is not ideal, a larger amount of ash collects on the grate as well. As soon as the electricity supply is restored, the controller takes control of the heating system again.

Opening ash box or firebox door

PH-04-00-00-02-01-BAEN

- The drive motors stop feeding the boiler with fuel
- The flue draught fan switches to maximum extraction speed
- After the ash box/firebox door is closed, normal operation is resumed

On stoker duct

PH-04-00-00-03-01-BAEN

The stoker duct and feeder box are designed to be completely air-tight as far as the fire safety flap. That means that any burn-back is extinguished by lack of air. The fire safety flap is tested and approved as a burn-back prevention device. A positioner motor opens and closes the flap. Fuel delivery does not start until the flap is completely open. If the event of a fault or a power failure, the flap closes automatically of its own accord. When the boiler is in operation, the controller prevents

burn-back into the stoker auger by replenishing the fuel. In addition, a sensor monitors the temperature in the vicinity of the stoker auger. In that way, burning fuel is continually pushed back out of the auger duct. This burn-back prevention system always functions unless the electricity supply to the boiler system is cut off.

On the fuel store outfeed unit

Required in all countries

PH-04-00-00-04-01-BAEN

In addition, between the end of the fuel outfeed unit and the burn-back prevention device there is a sprinkler unit that is used instead of the temperature monitor with **fuel stores with a capacity not exceeding 50 m³** and is triggered at 55°C. When the sprinkler is triggered, the sloping outfeed auger enclosure – which also serves as a burn-back inhibiting device – is completely flooded. The quantity of water required to do so is at least 20 litres. If the temperature drops back below 55°C, the flooding is stopped.

Note:

The sprinkler system must be connected on all systems regardless of local regulations.

Overfill prevention

PH-04-00-00-05-01-BAEN

The overfill prevention function is triggered by the switch on the overfill cover. The fuel outfeed unit then runs in reverse for 5 seconds and then for 5 seconds forwards. If the cover switch trips again, the outfeed unit immediately stops.

Fuel stores > 50 m³

Requirement in Austria

PH-04-00-00-06-01-BAEN

A temperature monitor connected to a warning device must be installed in the fuel storeroom at the point where the fuel conveyor exits the fuel store and enters the boiler room. The warning device must be triggered when the temperature exceeds 70°C.

Manually operated fire extinguishing facility

This fire extinguishing facility is for the purpose of combating a fire seated in the fuel storeroom/bunker/silo in the area of the outfeed unit and is manually actuated. It consists of conduit piping with a minimum size of DN 20 and is to be fitted in the fuel storeroom immediately above the fuel conveyor close to its exit point through the wall or ceiling and positioned so as to obtain the maximum possible fire extinguishing effect. The conduit piping is to be connected directly to a pressurised water supply and provided with a stop tap located in the boiler room. That tap must be identified by a sign carrying the inscription **"Fuel storeroom fire extinguisher"**. The design of the fire extinguishing facility must be such that it cannot be damaged by the delivery of fuel into the fuel store or by the fuel outfeed equipment.

5 Control panel description

BS-05-00-00-00-01-BAEN

The appliance has a large touch-screen control panel with a menu-based interface. All setting and query options are shown on the display. All settings can be entered by pressing the "buttons" on the touch screen. Any system messages are displayed on the screen.

PH-05-00-00-01-01-BADE

Power switch (1)

BS-05-00-00-02-01-BAEN

Normally remains permanently switched on. The power switch may only be switched off when the system is not in operation.

Note:	The system must also be disconnected from the mains by unplugging the power lead when carrying out repairs or servicing work.

STL (2)

BS-05-00-00-03-01-BAEN

Excessive temperature (approx. 100°C) trips the safety temperature limiter (STL) located under the cap (2); → appliance operation is suspended; → if the STL has tripped, identify and eliminate the cause and then press in the STL (button) with a thin object.

Note:	The system must not be started up again until any faults have been rectified and the boiler has been checked. If necessary, a heating engineer must be called in.

Touch-screen display (3)

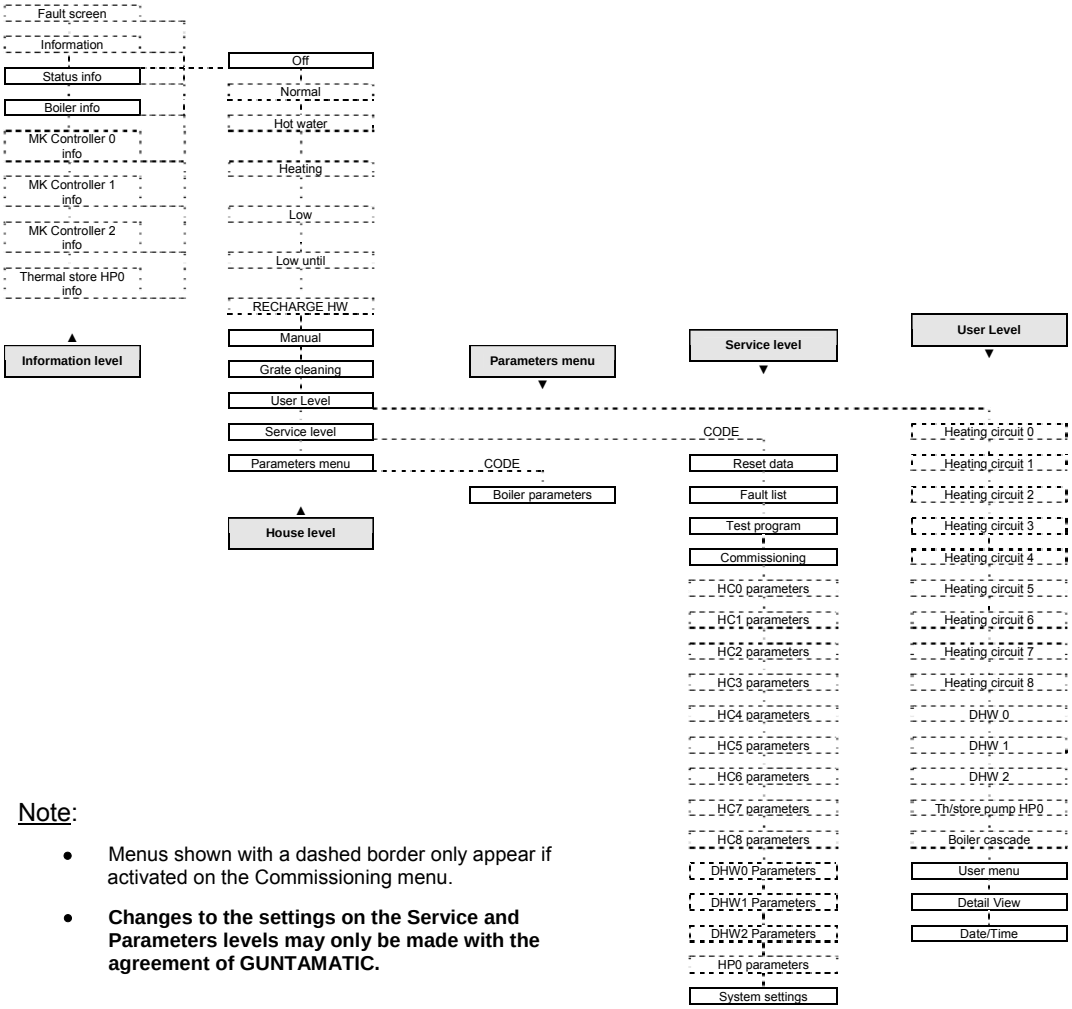
BS-05-00-00-04-01-BAEN

Pressing lightly with your fingertip on the relevant buttons on the display opens the various program levels, menus and submenus. All settings are made directly on the touch-screen display.

Note:	Never use sharp objects such as ball-point pens or the like to operate the touch screen.

6 Overview of menu and levels (menu structure)

PH-06-00-00-00-01-BAEN

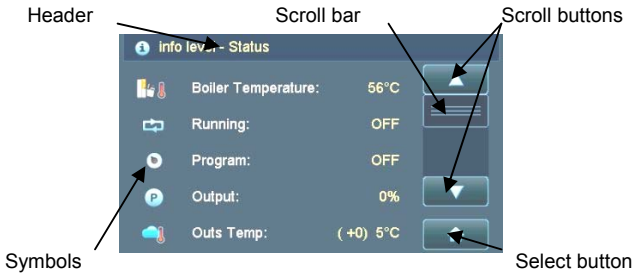


Note:

- Menus shown with a dashed border only appear if activated on the Commissioning menu.
- **Changes to the settings on the Service and Parameters levels may only be made with the agreement of GUNTAMATIC.**

Layout of touch-screen display

BS-06-00-00-01-01-BAEN



The header contains information about the level or menu selected. Operating statuses, sensor readings and switch conditions can be queried in the Selection window. The various buttons can be used to change and save settings or switch to different levels or menus, for example. You switch between the levels and menus by touching the buttons directly on the display screen.

6.1 Information level (user)

PH-06-01-00-00-01-BAEN

You use the "DOWN" ▼ and "UP" ▲ buttons to navigate through the **Information Level** menu.

Fault screen → highest priority

Plain-language fault messages are displayed showing date and time of occurrence

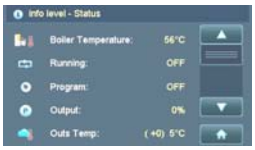
Fault is acknowledged by pressing "Quit" button

1)

Information level → Only shown if the programme "Low until" has been activated

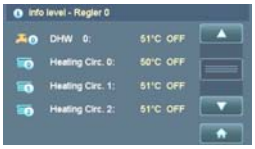
Disappears after the set time has elapsed

Can be prematurely deactivated by pressing "Quit" button



Info level – Status → Standard display on boiler
Shows boiler temperature
Shows boiler operating mode
Shows selected programme
Shows boiler output
1) Shows outside temperature → Figure in brackets = average temperature

Info level – Boiler → Shows boiler data
Shows flue gas temperature
Shows CO2 level
Shows efficiency
Shows time in hours until ash warning is triggered
Shows fuel setting



Info level – Controller 0 → Heating circuit controller 0 (HCC 0)
Shows domestic hot water temperature and operating mode for cylinder 0
Shows operating mode for heating circuit 0 → pump heating circuit Shows boiler temp.
Shows operating mode for heating circuit 1 → mixer heating circuit Shows flow temp.
Shows operating mode for heating circuit 2 → mixer heating circuit Shows flow temp.

▼ **Info level – Controller 1** → Heating circuit controller 1 (HCC 1)

▼ **Info level – Controller 2** → Heating circuit controller 2 (HCC 2)

2)

Thermal store info → Shows thermal store data
Shows thermal store temperature at top
Shows thermal store temperature at bottom
Shows thermal store pump operating mode
Shows charging programme

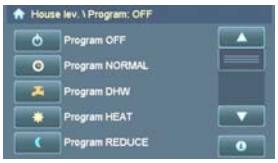
1) Only shown if one or more heating circuit controllers are activated.

2) Only shown if a thermal store is integrated in the system

6.2 House level (user)

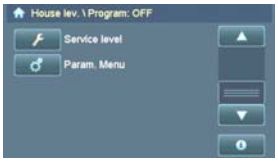
PH-06-02-00-00-01-BAEN

All heating programmes and menus are listed and described below:



Heating and hot water switched off → Anti-freeze function active
Heating and hot water on as per timer programme
Hot water as per timer programme DHW summer → Heating mode switched off
Heating mode → Day and night (hot water heating as per timer programme)
Low-temperature mode → Day and night (hot water heating as per timer programme)

Low-temperature mode until a specified time → Hot water as per timer programme
Hot water heating outside programmed charging times → Max. duration 90 min
3) Constant heating to specified boiler temperature → Set on User menu
3) Manual opening of grate for cleaning purposes
3) → Takes you to User level



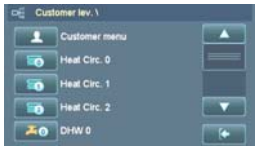
3) → Takes you to Service level → CODE required
3) → Takes you to Parameters level → CODE required

3) Pressing the buttons takes you to the relevant programme/level

6.3 User level (User)

PH-06-03-00-00-01-BAEN

Depending on the system configuration, the menu levels and submenus may contain different items.



4) User menu → User settings
Heating Circuit 0 menu → Timer controlled pump heating circuit on HCC 0
Heating Circuit 1 menu → Timer controlled pump heating circuit on HCC 0
Heating Circuit 2 menu → Timer controlled mixer heating circuit on HCC 0
Hot Water 0 menu → on HCC 0

5) Thermal store pump HP0 menu → Thermal store settings
Boiler Cascade menu → Settings for sequential boiler control
6) Detail View menu → Boiler data and operating modes are shown
7) Date/Time menu

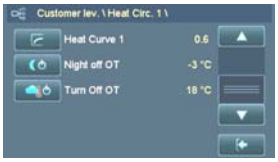
4) Important settings on User menu
5) Thermal store and charging programme settings
6) Facility for querying operating modes, sensor readings and switch conditions on Detail View menu
7) Facility for viewing/setting date and time on Date/Time menu

6.3.1 **Heating Circuit** menu (User)

BS-06-03-01-00-01-BAEN

The Heating Circuit menu allows you to enter the settings for the various heating circuits.

8) Heating circuit control status
Facility for setting heating and low-temperature times
9) Facility for setting daytime required temperature
10) Facility for setting night-time required temperature
11) Facility for setting room effect/thermostat function



12) Facility for setting heating characteristic
13) Changeover from low-temperature mode to night-time set temperature
14) Outside temperature mode cut-off for heating circuits

8) Options → **Auto** Heating circuit is switched ON/OFF according to demand and timer programme.
→ **Off** The heating circuit is switched off.
→ **Constant** The pump runs continuously; with mixer-valve heating circuits, the mixer valve is not operated

9) Modulation to "daytime required temperature" is only possible in conjunction with a room stat or room controller; raising or lowering the required temperature shifts the heating curve up or down accordingly.

10) Modulation to "night-time required temperature" is only possible in conjunction with a room stat or room controller; in addition, the outside temperature must be below that set in menu option "Night OFF OT" (hysteresis 2°C)

11) Options → **0**% No room effect programmed
→ **25**% Modulation of room temperature based 25% on room temperature and 75% on outside temperature.
→ **50**% Modulation of room temperature based 50% on room temperature and 50% on outside temperature.
→ **75**% Modulation of room temperature based 75% on room temperature and 25% on outside temperature.
→ **100**% Modulation of room temperature based 100% on room temperature.
→ **T 1°C** If the required room temperature is exceeded by 1°C the heating circuit pump is switched off.
→ **T 2°C** If the required room temperature is exceeded by 2°C the heating circuit pump is switched off.
→ **T 3°C** If the required room temperature is exceeded by 3°C the heating circuit pump is switched off.

12) A higher heating characteristic figure produces a higher required flow temperature at the same outside temperature

13) If the temperature drops below the set temperature during the low-temperature phase, the boiler heats to the required night-time temperature.

14) The set outside temperature is exceeded during the heating phase, the heating circuits are switched off.

6.3.2 **Hot Water** menu (User)

BS-06-03-02-00-01-BAEN

The Hot Water menu allows you to enter the settings for the various domestic hot water circuits.

15) Hot water circuit control status
16) Facility for setting hot water charging times
17) Facility for setting summer hot water charging times
Facility for setting required hot water temperature
18) Facility for setting hot water priority

15) Options → **Auto** Charging pump is switched ON/OFF according to demand and timer programme.
→ **Off** The charging pump is switched off.
→ **Constant** The charging pump runs continuously

16) All charging times programmed in the "DHW timer programme" are active when the programme is set to "Normal".

17) All charging times programmed in the "DHW summer timer programme" are active when the programme is set to "Hot Water".

18) Options → **No** During charging of DHW cylinder, heating circuits **can be enabled**.
→ **Yes** During charging of DHW cylinder, heating circuits **cannot be enabled** (factory setting = recommended).

6.3.3 **Heating Circuit** menu (User)

BS-06-03-03-00-01-BAEN

The Thermal Store HP0 menu allows you to enter settings for thermal store management.

19) Status of special output HP0
20) Facility for setting thermal store charging programme
21) Facility for setting thermal store charging times
Facility for setting the thermal store required temperature → Sensor (T3)
Facility for setting the thermal store minimum temperature → Sensor (T3)

19) Options → **Auto** Thermal store pump is switched ON/OFF according to demand and timer programme.
→ **Off** The thermal store pump is switched off
→ **Constant** The thermal store pump runs continuously

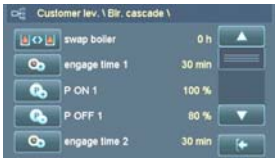
20) Options → **Full** The thermal store is fully charged
Charging switches off when the required thermal store temperature at T3 is reached and also the required thermal store temperature minus the parameter TSbtm-Boff (-10°C) is reached at T2
→ **Part** The thermal store is partially charged
Charging switches off when the required thermal store temperature is reached at T3 (= parameter TS top-B off)

21) Thermal store only charged during charging times enabled in "Thermal store timer programme"

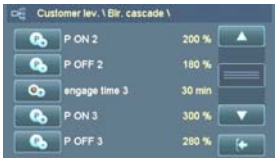
6.3.4 **Boiler Cascade** menu (User)

PH-06-03-03-00-01-BAEN

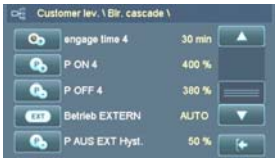
On the Boiler Cascade Parameters menu (only visible on boiler "A") you can make settings for sequential boiler control. Second boiler in the cascade system = boiler "B", third boiler = boiler "C", etc. Boiler "A" must be at address "0" on the router module, boiler "B" at 1, boiler "C" at 2, etc. After reassigning addresses on the router module, the boilers have to be disconnected entirely from the power supply. Only after that are the settings activated on the boiler.



For setting time until boiler changeover → 0h = no boiler changeover
For setting time delay before second-stage boiler cuts in
Min. output of 1st stage for cut-in of 2nd stage after delay
Max. output of all stages for cut-out of last stage to cut in
For setting time delay before third-stage boiler cuts in



Min. output of all stages for cut-in of 3rd stage after delay
Max. output of all stages for cut-out of last stage to cut in
For setting time delay before fourth-stage boiler cuts in
Min. output of all stages for cut-in of 4th stage after delay
Max. output of all stages for cut-out of last stage to cut in



For setting time delay before cut-in of EXT boiler stage
Min. output of all stages for cut-in of EXT stage after delay
Max. output of all stages for cut-out of last stage to cut in
Facility for switching off external boiler stage → OFF = Ext. boiler stage is switched off
22) For setting cut-out hysteresis for external boiler stage

22) Example 1: Boiler cascade system with one biomass boiler and one external boiler
→ **10%** The external boiler is switched off as soon as the biomass boiler is running at only 90% of its possible total output of 100%
→ **50%** The external boiler is switched off as soon as the biomass boiler is running at only 50% of its possible total output of 100%

Example 2: Boiler cascade system with two biomass boilers and one external boiler
→ **10%** The external boiler is switched off as soon as the biomass boilers are running at only 180% of their combined possible total output of 200%
(Possible total output of biomass boilers = 200% minus 2 x 10% for two boilers = 180%)
→ **50%** The external boiler is switched off as soon as the biomass boilers are running at only 100% of their combined possible total output of 200%
(Possible total output of biomass boilers = 200% minus 2 x 50% for two boilers = 100%)

6.3.5 **User** menu (User)

PH-06-03-04-00-01-BAEN

Depending on the system configuration, the menus may contain different items.

23)

Menu option Ash emptied → Press "YES" to confirm after emptying ash box
Maximum time in hours until ash warning is triggered → 0h = Ash warning deactivated
For selecting fuel setting → Sets the type of fuel being used
Boiler enabling options
Manual filling of outfeed auger→ A1 + G1

24)

For activating testing programme
Menu language setting

23) Options
→ **AUTO** Boiler enabling dependent on enabling switch 22/23 on the boiler circuit board
(Enabling switch closed > Burner active on demand, heating circuit controller active)
(Enabling switch open > Burner off, heating circuit controller active)
→ **OFF** Boiler not enabled regardless of enabling switch 22/23 on the boiler circuit board
(Enabling switch closed > Burner off, heating circuit controller active)
(Enabling switch open > Burner off, heating circuit controller active)
→ **CONSTANT** Boiler permanently enabled regardless of enabling switch 22/23 on the boiler circuit board
(Enabling switch closed > Burner active on demand, heating circuit controller active)
(Enabling switch open > Burner active on demand, heating circuit controller active)

24) Options
→ **OFF** Flue gas testing function switched off
→ **ON** Flue gas testing function switched on

6.3.6 **Detail View** menu (User)

BS-06-03-05-00-01-BAEN

All possible system operating statuses, sensor readings and switch conditions can be queried in Detail View. No settings can be made on this menu. Its primary purpose is to aid telephone diagnosis of possible fault causes and to assist the GUNTAMATIC engineer with fault rectification.

6.3.7 **Date/Time** menu (User)

BS-06-03-06-00-01-BAEN

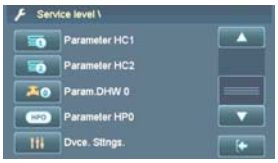
6.4 **Service Level** (Expert)

BS-06-04-00-00-01-BAEN

CODE entry required.

Changes to the settings on the Service Level may only be made with the agreement of GUNTAMATIC or an authorised GUNTAMATIC engineer.

Service menu Reset data → **Caution:** All system settings may be lost.
Service menu Fault screen → Fault memory
Service menu Test program → Function test of all system components
Service menu Commissioning → Activation of all system components
Service menu HC0 Parameters → Parameters for HC0



Service menu HC1 Parameters → Parameters for HC1
Service menu HC2 Parameters → Parameters for HC2
Service menu DHW0 Parameters → Parameters for DHW cylinder 0
Service menu HP0 Parameters → Parameters for HP0
Service menu System settings→ System parameters

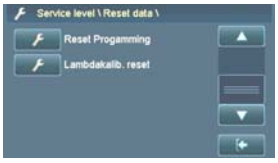
6.4.1 Service menu **Reset Data** (Expert)

BS-06-04-01-00-01-BAEN

Caution: If the service menu option "Reset Data" is incorrectly used, reconfiguration of the entire system may be necessary.

25)

For importing stored customer data if necessary
For saving changes to system configuration in customer data
Imports only the modified parameters of a new software version
For resetting duty hours counter is to 0
For resetting service interval timer to 0



26)

Loads factory settings → The system then has to be reconfigured!
For resetting calibration after replacing the oxygen sensor

25) After a change of software version, only those parameters that have changed or been added in the new version are imported.

26) **Caution:** → All system settings including hours of duty and service interval timer readings are lost;
→ after a controller reset, the system is in the as-delivered condition;
→ the system then has to be reconfigured;

6.4.2 Service menu **Error List** (Expert)

BS-06-04-02-00-01-BAEN

Plain-language fault messages are displayed showing date and time of occurrence

6.4.3 Service menu **Begin Service** (Expert)

BS-06-04-03-00-01-BAEN

All system components present can be programmed and activated from the service menu Commissioning.

For setting boiler type
For setting boiler output → stated on rating plate
For setting outfeed system type
For activating feed auger → available as an option
Only activated if a grain lining is fitted → available as an option

For activating automatic ash removal → available as an option
For setting fuel type
27) For activating heating circuit controller 0 → CAN bus = external wall controller
For activating DHW cylinder 0
For setting the DHW charging time → for NORMAL programme

For setting the DHW charging time → for HOT WATER programme
For setting required hot water temperature
For setting hot water priority
28) For activating heating circuit 0
28) For activating heating circuit 1

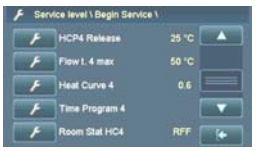
Enabling temperature for Heating circuit 1
For setting maximum flow temperature for heating circuit 1
Setting for heating characteristic for heating circuit 1
For setting heating times for heating circuit 1
29) For activating room stat or room controller for heating circuit 1

28) For activating heating circuit 2
Enabling temperature for Heating circuit 2
For setting maximum flow temperature for heating circuit 2
Setting for heating characteristic for heating circuit 2
For setting heating times for heating circuit 2

29) For activating room stat or room controller for heating circuit 2
30) For activating supplementary function 0
27) For activating heating circuit controller 1 → wall controller
For activating DHW cylinder 1
For setting the DHW charging time → for NORMAL programme

For setting the DHW charging time → for HOT WATER programme
For setting required hot water temperature
For setting hot water priority
28) For activating heating circuit 3
Enabling temperature for Heating circuit 3

For setting maximum flow temperature for heating circuit 3
Setting for heating characteristic for heating circuit 3
For setting heating times for heating circuit 3
29) For activating room stat or room controller for heating circuit 3
28) For activating heating circuit 4



Enabling temperature for Heating circuit 4
For setting maximum flow temperature for heating circuit 4
Setting for heating characteristic for heating circuit 4
For setting heating times for heating circuit 4
29) For activating room stat or room controller for heating circuit 4

28) For activating heating circuit 5
31) For activating district heating pipe function on HCC 1
30) For activating supplementary output 1 on HCC 1
27) For activating heating circuit controller 2 → wall controller
32) For activating pump output HP0

33)

Assignment of thermal store sensor
Manual filling of outfeed auger→ A1 + G1
For saving user parameters after system configuration

27)	Options	→ **No**	Heating circuit controller is not activated
	HCC 1-2 only	→ **Yes**	Heating circuit controller is activated → external heating circuit controller (wall controller)
	HCC 0 only	→ **CAN bus**	Heating circuit controller is activated → external heating circuit controller (wall controller)
	HCC 0 only	→ **SY bus**	Heating circuit controller is activated → internal heating circuit controller
28)	Options	→ **None**	Heating circuit is deactivated
		→ **Pump**	The heating circuit pump will be controlled by the timer programme
		→ **Mixer**	The heating circuit pump and the mixer valve will be controlled by the timer programme
29)	Options	→ **None**	No room stat connected
		→ **RFF**	Analogue room stat is connected
		→ **RS Full**	Digital room controller is connected (facility for setting all heating circuits)
		→ **RS HC**	Digital room controller is connected (facility for setting assigned heating circuit only)
		→ **RS HCC**	Digital room controller is connected (facility for setting one heating circuit controller)
30)	***** Internal heating circuit controller		the function "*Supplementary 0*" can only be activated on the internal heating circuit controller if heating circuit 0 is set to no function by selecting "*None*"
	***** External heating circuit controller		the function "*Supplementary 0*" can only be activated on the external heating circuit controller if heating circuit 0 is not set to "*Mixed heating circuit*"
	Options	→ **None**	Function is deactivated
		→ **HWP**	An additional DHW cylinder is activated
		→ **External**	Heat from an external boiler (e.g. oil boiler) can be requested using the Cascade function
31)	Options	→ **FP**	The district heating pipe function is controlled as a feeder pump (for setting see plumbing diagram)
		→ **TSP**	The district heating pipe function is controlled as a thermal store pump (for setting see plumbing diagram)
		→ **CP**	The district heating pipe function is controlled as a charging pump (for setting see plumbing diagram)
32)	Options	→ **F pump**	Pump HP0 is operated as a feeder pump (only activate with heating circuit controller)
		→ **Th/store pump**	Pump HP0 is operated as a thermal store pump (only activate with thermal store)
		→ **Pump**	Pump HP0 is operated as a pump (only activate without heating circuit controller)
33)	Options	→ **Boiler**	The sensors of thermal store HP0 are connected to the boiler circuit board
		→ **HCC 0**	The sensors of thermal store HP0 are connected to heating circuit controller 0 (external wall controller)
		→ **HCC 1**	The sensors of thermal store HP0 are connected to heating circuit controller 1 (external wall controller)
		→ **HCC 2**	The sensors of thermal store HP0 are connected to heating circuit controller 2 (external wall controller)

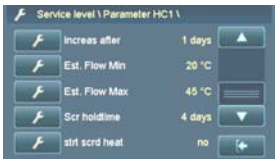
6.4.4 Service menu **Heating Circuit/Screed Drying Programme Parameters** (Expert)

BS-06-04-04-00-01-BAEN

Options for setting the heating circuit and screed drying parameters:

Heating circuit operating status
Room stat setting
For setting mixer valve running time
For setting minimum flow temperature
For setting maximum flow temperature

For setting boiler overcompensation → added to required temp. = required boiler temp.
Enabling temperature for Heating circuit 1
For setting heating characteristic parallel shift
34) For activating screed drying programme
Screed prog. → For setting the flow temperature increment



Screed prog. → For setting time until next flow temperature increase
Screed prog. → For setting minimum flow temperature
Screed prog. → For setting maximum flow temperature
Screed prog. → For setting holding time for maximum flow temperature
Screed prog. → For starting the screed drying programme

CAUTION: **The screed drying parameters must be set in consultation with the floor layer.**

Maintaining the specified temperatures is not possible in modulating control mode but only when using automatic mixer valves. Maintenance of the specified temperatures cannot be 100% guaranteed – due to various safety circuits and special boiler functions, in exceptional cases the temperatures can be significantly exceeded. If that is a problem in terms of damage to building work, the screed drying function should be operated manually.

34) After activation of the screed drying programme, the menu expands to reveal the screed programme parameters.

6.4.5 Service menu **Hot water parameters** (Expert)

BS-06-04-05-00-01-BAEN

Facility for setting hot water parameters

Hot water circuit operating mode
35) Facility for setting hot water hysteresis → Hot water cylinder recharging
Enabling temperature for cylinder charging pump → CCP 0
For setting boiler overcompensation → added to required temp. = required boiler temp.

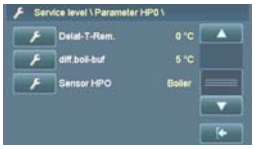
35) If the temperature in the hot water cylinder falls 10°C (hysteresis) below the required temperature, the hot water cylinder is heated up again; the precondition is that the charging time is enabled in the timer programme on the "Hot water" menu.

6.4.6 Service menu **HP0 parameters** (Expert)

PH-06-04-06-00-01-BAEN

Facility for setting the parameters for special output HP0

Operating status of special output HP0
Enabling temperature for special output HP0
36) For setting for thermal store top charging ON temperature
37) For setting for thermal store top charging OFF temperature
38) For setting for thermal store bottom charging OFF temperature



Facility for setting district heating pipe temperature loss
For setting temperature difference between boiler and bottom of thermal store
Thermal store sensor assignment for thermal store HP0

36) Function **TS top charge ON** The boiler is started up when the thermal store temperature falls below the maximum temperature required by the heating circuit controller minus the temperature set in the parameter "TS top charge ON"

Example: Maximum temperature required by heating circuit controller = 55 °C
Setting for "TS top charge ON" = 6°C

The boiler starts up when the temperature at the thermal store top sensor (T3) is 49°C

37) Function **TS top charge OFF** With the partial charging programme the boiler is shut off when the temperature at the thermal store top sensor (T3) reaches the thermal store required temperature plus the temperature set for the parameter "TS top charge OFF"

Example: Required thermal store temperature = 70°C
Setting for "TS top charge OFF" = 5°C

The boiler is shut off when the temperature at the thermal store top sensor (T3) is 75°C

38) Function **TS btm charge OFF** With full charging programme, the boiler is shut off as soon as the temperature at the bottom of the thermal store (T2) only differs from the temperature at the top of the thermal store (T3) by the amount set for the parameter "TS btm charge OFF"

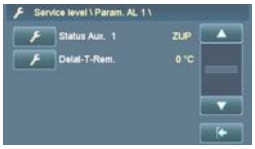
Example: Temperature at top of thermal store (T3) = 70 °C
Setting for parameter "TS btm-B off" = -10 °C

The boiler is shut off when the temperature at the thermal store bottom sensor (T2) is 60°C

6.4.7 Service menu **District heating pipe parameters ZUP** (Expert)

PH-06-04-08-00-01-BAEN

Set the correct district heating pipe function according to the details in the plumbing diagrams.



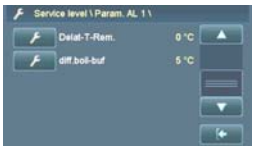
Operating status of district heating pipe function
Facility for setting district heating pipe temperature loss

6.4.8 Service menu **District heating pipe parameters PUP** (Expert)

PH-06-04-09-00-01-BAEN

Set the correct district heating pipe function according to the details in the plumbing diagrams.

Operating status of district heating pipe function
Facility for setting district heating pipe enabling temperature
36) For setting for thermal store top charging ON temperature
37) For setting for thermal store top charging OFF temperature
38) For setting for thermal store bottom charging OFF temperature



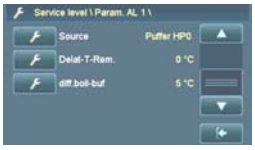
Facility for setting district heating pipe temperature loss
For setting temperature difference between boiler and bottom of thermal store

6.4.9 Service menu **District heating pipe parameters LAP** (Expert)

PH-06-04-10-00-01-BAEN

Set the correct district heating pipe function according to the details in the plumbing diagrams.

Operating status of district heating pipe function
Facility for setting district heating pipe enabling temperature
36) For setting for thermal store top charging ON temperature
37) For setting for thermal store top charging OFF temperature
38) For setting for thermal store bottom charging OFF temperature

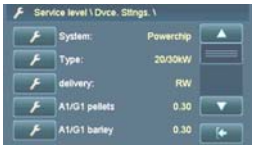


Facility for setting the supplying thermal store (source thermal store)
Facility for setting district heating pipe temperature loss
For setting temperature difference between boiler and bottom of thermal store

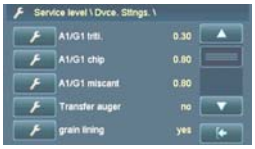
6.4.10 Service menu **System settings** (Expert)

PH-06-04-07-00-01-BAEN

Facility for setting special boiler and system parameters

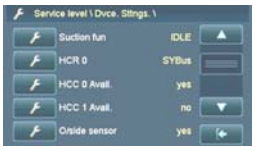


For setting system type → stated on rating plate
For setting boiler type → stated on rating plate
Facility for setting fuel outfeed type
For setting speed ratio of A1/G1 when fuel set to pellets
For setting speed ratio of A1/G1 when fuel set to barley



For setting speed ratio of A1/G1 when fuel set to triticale
For setting speed ratio of A1/G1 when fuel set to woodchips
For setting speed ratio of A1/G1 when fuel set to miscanthus
Facility for activation if feed auger A2 used
Facility for activating grain lining → only allowed if actually fitted

Facility for activating automatic ash removal
Facility for activating fill-level sensor 1 → option for storeroom monitoring
Fuel spout activation/deactivation
Facility for activating boiler cascade → sequential boiler control
Facility for setting grate drive type

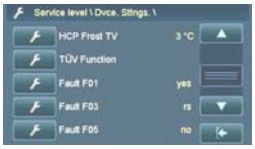


Facility for setting flue draught fan control
Facility for activating heating circuit controller 0
Facility for activating heating circuit controller 1
Facility for activating heating circuit controller 2
Outside-temperature sensor activation/deactivation

39) Facility for setting oxygen sensor type
Facility for setting oxygen sensor heater control
For activating oxygen sensor calibration
Facility for manual entry of oxygen sensor compensation
Facility for setting oxygen sensor characteristic → only during "Controller" mode

40) Facility for setting BT compensation
Facility for activating monitoring mode
Facility for data recording on SD memory cards
Facility for reading data from SD memory cards
For querying manufacturer code

Network activation option
Activates all pumps once a week for the set amount of time
If boiler or thermal store temperature exceeded → switches all heating circuits on
HP0 pumps continue running until temperature at boiler is below set temperature
If the outside temperature falls below "HCP A/F outside", the heating circuit pumps start running



"HCP A/F Flow" = Required flow temperature → only in "OFF" mode
Raises boiler temperature until STL trips → only in "Controller" mode
Activation/Deactivation of fault messages → CAUTION – do not change!
Activation/Deactivation of fault messages → CAUTION – do not change!
Activation/Deactivation of fault messages → CAUTION – do not change!

▼

Descriptions of the fault messages can be found in the section Information/Fault messages

39) Options → **Auto** The oxygen sensor heater is switched on/off according to operating mode
→ **Constant** The oxygen sensor heater is permanently switched on
(Oxygen sensor heater does not switch off until boiler has been in "OFF" mode for more than 50h)

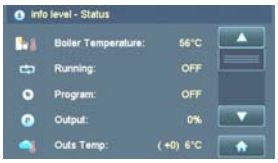
40) Options → **Terminal** Data querying via Windows hyper terminal/display
→ **DAQ** Data querying via online recorder (only usable at factory)
→ **GSM module** Data querying, information messages and boiler control via GSM module

7 User Settings

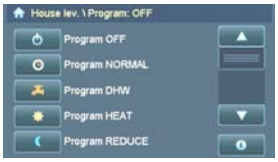
7.1 Activating a heating programme

BS-07-01-00-00-01-BAEN

To activate the "NORMAL" programme, proceed as set out below, step by step:

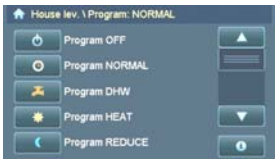


1) → Press the "**House level**" button



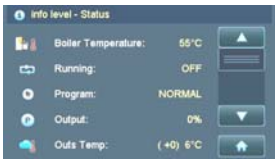
The programme currently selected, "**Off**", is shown in the header

2) → Press the "**Normal**" button



The new programme selected, "**Normal**", is now shown in the header

3) → Press the "**Info**" button



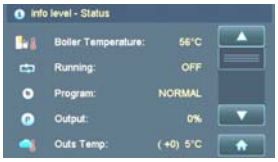
4) → The "**Normal**" programme is now shown on the "Status information" screen

After activating the "NORMAL" heating programme, check the selected programme on the "Status information" screen. As soon as heat is called for and there is sufficient heat in the thermal store, the heating circuits start up fully automatically.

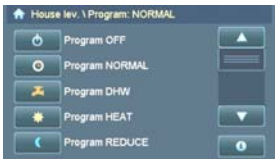
7.2 Deactivating a heating programme

BS-07-02-00-00-01-BAEN

To set the "NORMAL" programme to "OFF", proceed as set out below, step by step:

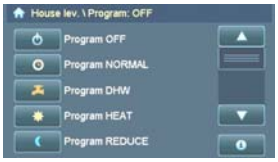


1) → Press the "**House level**" button



The programme currently selected, "**Normal**", is shown in the header

2) → Press the "**Off**" button



The new programme selected, "**Off**", is now shown in the header

3) → Press the "**Info**" button

4) → The "**Off**" programme is now shown on the "Status information" screen

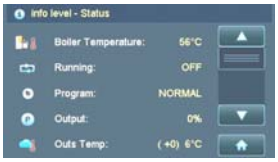
After deactivating the "NORMAL" heating programme, check the selected programme on the "Status information" screen.

7.3 Setting a timer programme

BS-07-03-00-00-01-BAEN

The heating circuits/charging pumps can only be called into action during the times enabled in the timer programme.

The example set out below illustrates programming the timer programme for heating circuit 1:



1) → Press the "**House level**" button

2) → Press the "**User level**" button

3) → Press the "**Heating circuit 1**" button

4) → Press the "**Timer programme 1**" button

5) → Press the button for the day of the week to be set

6) → Press the "ON" or "OFF" time to be altered

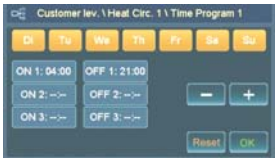
7) → Use the + and − buttons to set the time

8) → To save the setting, press the OK button

7.3.1 Programming en bloc

BS-07-03-01-00-01-BAEN

En bloc programming can be used to programme the same on and off times for every day of the week.



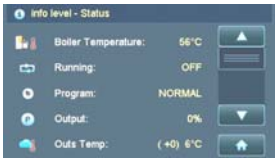
To activate programming en bloc, press the **same weekday button twice in succession**; all days are then highlighted and can be programmed collectively to the same times

7.4 Changing the heating characteristic

BS-07-04-00-00-01-BAEN

The heating circuits/charging pumps can only be called into action during the times enabled in the timer programme.

The example set out below illustrates programming the heating characteristic for heating circuit 1:



1) → Press the "**House level**" button

2) → Press the "**User level**" button

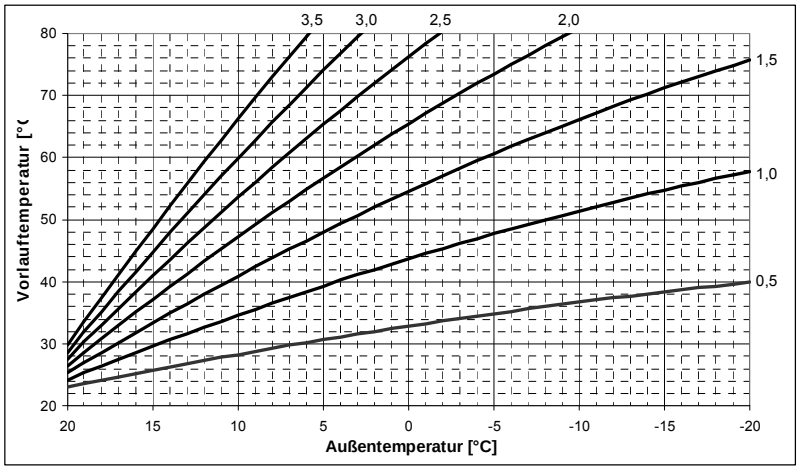
3) → Press the "**Heating circuit 1**" button

4) → Press the "**Heating characteristic 1**" button

5) → Use the + and − buttons to set the heating characteristic

6) → To save the setting, press the OK button

Heating characteristic graph

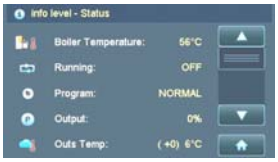


7.5 Changing the required hot water temperature

BS-07-05-00-00-01-BAEN

You can change the required hot water temperature on the Hot Water menu.

The example set out below illustrates programming the required temperature for DHW cylinder 0:



1) → Press the "**House level**" button

2) → Press the "**User level**" button

3) → Press the "**DHW cylinder 0**" button

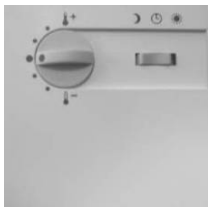
4) → Press the "**DHW required temp 0**" button

5) → Use the + and − buttons to set the required temperature

6) → To save the setting, press the OK button

7.6 Analogue room stat

BS-07-06-00-00-01-BAEN



If your system is fitted with an outside-temperature based heating circuit controller, each heating circuit can be equipped with an analogue room stat if desired.

The control knob on the room stat allows adjustment of the required room temperature preset on the Heating Circuit menu. Setting the control to a position in the positive range (+) raises the room temperature by up to 3°C. Setting it to a position in the negative range (–) lower lowers the room temperature by up to 3°C.

Note: This means that the room temperature shown in the Detail View will be inaccurate. The room temperature shown will only match the actual temperature when the control knob is in the centre position.

Operating modes

Low: Low-temperature mode → if, during the low-temperature phase, the outside temperature falls below the temperature set in the parameter "Night OFF OT", the system heats to the room temperature set in the parameter "Night-time Required Temperature".

Normal: Heating and low-temperature modes on as per timer programme

Heating: Continuous heating to "Required Daytime Temperature"

Installation site

Fix the room stat on an internal wall at a height of approx. 1m - 1.5m. The most effective room is the one that is most frequently occupied. In that room, the radiators must not be fitted with thermostatic radiator valves (valves must be fully turned on).

Note: The room stat should not be fitted in a position where it will be exposed to warm sunshine or the heat from a stove.

Connection

Pull off the control knob from the front, undo the fixing screw and remove the casing from the front.
Wire the room stat to terminals 1 and 2.

7.7 Digital room controller

BS-07-07-00-00-01-BAEN

An instruction manual is supplied with the room controller.

A maximum of 3 room controllers can be connected to the system.

Connection is established via the CAN bus.

8 Operating the heating system

8.1 Starting up/Shutting down the system

BS-08-01-00-01-01-BAEN

Initial commissioning

Initial commissioning and basic adjustment of the system may only be carried out by GUNTAMATIC engineers or authorised GUNTAMATIC agents.

BS-08-01-00-02-01-BAEN

Restarting

Before starting up the system again in the autumn/winter, carry out the annual check of the control and safety systems to ensure they are safe and functional. We recommend that you take out a maintenance contract so that the system operates safely and economically.

BS-08-01-00-03-01-BAEN

Day-to-day operation

Clean the heating system precisely according to the instructions in the section Cleaning/Care. The amount of cleaning work required is heavily dependent on the quality of the fuel used and lower-quality fuels may necessitate more cleaning work.

BS-08-01-00-04-01-BAEN

Shutting down the system

The system only needs to be shut down at the end of the heating season, if faults occur or in order to refill the fuel store. To do so, set the system to the programme "OFF" and allow it to cool down for approx. 120 minutes. The system can then be shut down.

If the system is not used for extended periods (summer) also isolate it from the power supply by disconnecting the mains plug in order to prevent unnecessary lightning damage.

8.2 Heating system checks

BS-08-02-00-01-01-BAEN

Checking system pressure

The operating pressure is normally between 1 bar and 2.5 bar. If the system pressure is too low, malfunctions may result. If necessary top up the water in the heating system.

Note: Completely draining and refilling the system or topping up a system filled with anti-freeze or treated water must only be carried out by a heating engineer.

Topping up the heating system water

- The heating system water must be cold when topping up → make sure the heating system water temperature is below 40°C.
- Add water slowly until the required system pressure is indicated on the system pressure gauge.
- Bleed the heating system.
- Check the system pressure again and add more water if necessary.

SY-08-02-00-01-01-BAEN

Temperature-relief valve

Firmly press in the red knob on the relief valve: → cools the boiler using water from the domestic water system if the boiler overheats; → in the event of malfunctions or leaks, call in your installer or heating engineer.

PH-08-02-00-01-01-BAEN

Sprinkler system — Firmly press in the red knob on the sprinkler: → extinguishes burn-back in the outfeed unit; → in the event of malfunctions or leaks, call in your installer or heating engineer.

PH-08-02-00-02-01-BAEN

Manual fire extinguisher (MFE) — Check water supply/tank; → used to extinguish a fire in the outfeed unit

BS-08-02-00-02-01-BAEN

Pressure-relief valve — Turn the red knob on the safety set; → check for leaks and correct operation; → in the event of malfunctions or leaks, call in your installer or heating engineer.

BS-08-02-00-03-01-BAEN

Expansion vessel — If there are large pressure fluctuations between when the heating system is hot and cold, check the charge pressure in the expansion vessel; → in the event of malfunctions or leaks, call in your installer or heating engineer.

BS-08-02-00-04-01-BAEN

Boiler room ventilation — Check that the air supply vents/ducts are clear.

8.3 Fuel quality

BS-08-03-00-00-01-BAEN

To ensure trouble-free heating with the boiler, the fuel must be of the right quality.

PH-08-03-00-01-01-BAEN

Your GUNTAMATIC heating system is designed for burning G30 woodchips with a max. moisture rating of W30, and pellets. With the optional lining for grain/miscanthus, the fuels barley, triticale and miscanthus can also be burned.

Our systems can handle fuels with a water content of up to 30% (W30). However, it does not make sense to burn fuels with a significant moisture content as a considerable proportion of the energy has to be used to evaporate the water in the fuel. The amount of ash produced in practical terms essentially depends on how clean the fuel is. With woodchips, the fine ash component increases with higher proportions of rotting wood, needles, etc.

Note: Dust emission from the flue is related to the quality of the fuel.

Dry fuels enable substantially greater levels of efficiency.

8.4 Fuels

8.4.1 Woodchips

PH-08-04-01-00-01-BAEN

Woodchips are made from waste wood from forestry work or from trees. After felling, chipping wood should be left to season for at least one summer in an airy and sunny location. In sunny spots, the wood can be left lying on the ground among needles so as to make use of the moisture-absorbing effect of the needles. The wood seasoned for at least a few months is shredded into woodchips of the required size by special shredding machines.

Make sure that the average woodchip size of 3 cm (G30) is not exceeded as otherwise the auger conveyors may jam or be noisy in operation. Long thick strips of wood can cause problems on the fuel outfeed system and loss of heat output.

Energy density/volume

1 cu m bulk volume	Spruce	750 kWh
1 cu m bulk volume	Pine	880 kWh
1 cu m bulk volume	Larch	960 kWh
1 cu m bulk volume	Oak	1050 kWh
1 cu m bulk volume	Beech	1050 kWh

Quality classes

	Water content	**Equivalence**
W20 air dried	< 20%	120%
W30 suitable for storage	>20% <30%	110%
W35 restricted suitability for storage	>30% <35%	100%
W40 damp (not suitable for storage)	>35% <40%	85%
W50 freshly harvested (not suitable for storage)	>40% <50%	65%

Properties

Calorific value	3.3 – 4.0 kWh/kg
Bulk weight	180 kg – 270 kg/cu m bulk volume
Woodchip size	G30, up to 30 mm
Primary energy factor	fP = 0.2

8.4.2 Pellets

BS-08-04-01-00-01-BAEN

There are a number of points to observe when ordering wood pellets in order to ensure that they are of perfect quality. Reliable and trouble-free operation of the boiler and the conveying systems can only be guaranteed with high-quality pellets. Therefore we strongly advise that only quality-assured products are used that are guaranteed as such by the manufacturer.

Important quality criteria

- Lowest possible dust content
- Surface should be shiny and very hard
- No additives or binding agents
- The ideal length is 20 mm

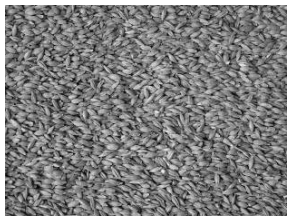
The price should always be a secondary consideration after the quality criteria. If the required quality criteria are not met, problems with combustion or conveying, increased wear and pellet consumption can result. Therefore, you should not accept quality standards that do not meet the above requirements.

Properties

Calorific value	4.9 kWh/kg
Bulk weight	>650 kg/m³
Pellet size (length)	5 - 30 mm
Pellet diameter	5 - 6 mm
Water content	8 – 10 %
Ash content	< 0.5%

8.4.3 Grain fuel

PC-08-04-01-00-01-BAEN



Advanced cultivation, harvesting and storage methods combined with optimum conveying and metering qualities make grain an economical and convenient fuel. Fundamentally, all types of feed grain are suitable. The best suited to combustion are grain types with husks and a low protein nitrogen content such as triticale. As the fusion point of grain ash (clinker formation) is around 700°C (wood ash 1200°C), it is advisable to add approx. 0.3 - 0.5% by weight of slaked lime (calcium hydroxide $Ca(OH)_2$) to the fuel before use for boilers with ratings up to 50 kW and 0.5 - 0.8% for boilers with ratings over 50 kW. That increases the calcium content of the fuel, thereby raising the ash fusion point.

Note: Must not be stored with a residual moisture content of more than 13%.

Properties

	Barley	**Triticale**
Calorific value	4.3 – 4.4 kWh/kg	4.5 – 4.6 kWh/kg
Bulk weight	650 – 680 kg/m³	700 – 750 kg/m³
Nitrogen content	1.4 – 1.6 %	1.5 – 1.7 %
Fusion point	750°C	720°C
Ash content	2.2 – 2.4 %	2.0 – 2.2 %

8.4.4 Miscanthus

PH-08-04-02-00-01-BAEN

The dried straw is harvested annually from the 3rd year on from April to May using a forage harvester. The crop should have a maximum moisture content of 20% when harvested. Miscanthus has to be stored dry. As the fusion point of miscanthus ash (clinker formation) is around 900°C (wood ash 1200°C), it is advisable to add approx. 0.3 - 0.5% by weight of slaked lime (calcium hydroxide $Ca(OH)_2$) to the fuel before use for boilers with ratings up to 50 kW and 0.5 - 0.8% for boilers with ratings over 50 kW. That increases the calcium content of the fuel, thereby raising the ash fusion point.

Note:	**Miscanthus has to be stored dry.**

Quality classes

	Water content	**Equivalence**
W20 air dried	15%	100%
W30 suitable for storage	>15% < 20%	90%

Properties

	Miscanthus
Calorific value	3.6 – 4.0 kWh/kg
Bulk weight	70 – 90 kg/cu m bulk volume
Fusion point	900°C

8.5 Fuel storage

BS-08-05-00-00-01-BAEN

As a general rule, wood pellets should be stored in absolutely dry storerooms. Those rooms can be fitted with pressure-filling and air extraction pipes (Type A/110/DIN14309/G4 ½") or be provided with a filling hatch and must be fire-rated to Class F90. The fire door must be protected by removable wooden boards. The wall opposite the pressure-filling pipe is to be protected by a blast guard. Alternatively, the pellets can be stored in fabric hoppers or plastic outdoor tanks.

Note:	If pellets come into contact with water, they swell up and disintegrate.
	Therefore, the storeroom must be absolutely dry.

8.6 Filling/refilling the fuel store

BS-08-06-00-01-01-BAEN

Caution: The heating system must be set to "Off" mode at least one hour before the fuel store is filled.

On no account must the fuel store be filled while the heating system is in operation!

First-time filling

PH-08-06-00-01-01-BAEN

When first filling the storeroom and every time it is refilled after being completely emptied, do not immediately fill the store completely.

Filling

The fuel store must be absolutely dry; otherwise the fuel cannot be stored in it. Fill the storeroom with fuel to a depth of 50 cm, spreading it evenly over the agitator and agitator arms. Then select the option Fill Auger from the User menu and run the agitator briefly so that the agitator arms can retract under the agitator cover plate. The fuel storeroom can then be filled up to the maximum permissible bulk storage height.

Refilling

Before filling, and especially before refilling, the condition of the storeroom/remaining fuel should be examined. Residual fuel should be completely used up and/or dust removed so that old fuel and dust does not accumulate over a period of years. Broken pieces of wall or plaster and foreign objects of any kind (pieces of wood, stone, metal, etc.) can cause faults and/or damage throughout the system.

Maximum bulk storage height

Woodchips	max. 5.0 m bulk storage height
Pellets	max. 2.5 m bulk storage height
Grain fuel	max. 2.5 m bulk storage height
Miscanthus	max. 5.0 m bulk storage height

Note: Failure to observe the above limit can result in damage to the agitator and the fuel outfeed unit.

All guarantee claims will then be void.

Caution: Risk of injury from rotating parts.

Only enter the store room when the system is switched off. Always shut off the power supply before entering.

8.7 Combustion air setting

PH-08-07-00-00-01-BAEN

After every change of fuel or after the boiler has not been used for an extended period, the combustion air setting should be checked/reset.

The adjuster lever for the combustion air is located on the right above the right-hand ash box (see illustrations below).

The ratio of primary to secondary air is set according to the fuel using the lever.

Powerchip 20/30

• Woodchips	Position 6-7	(> 25% moisture, position 7)
• Pellets	Position 6	(CO2 10-12% at 100% output)
• Miscanthus	Position 6	(CO2 10-12% at 100% output)
• Barley	Position 8	(CO2 8-10% at 100% output)
• Triticale	Position 5	(CO2 8-10% at 100% output)

(Rod at hole 30)

Powerchip 40/50

• Woodchips	Position 6-7	(> 25% moisture, position 7)
• Pellets	Position 7	(CO2 10-12% at 100% output)
• Miscanthus	Position 6	(CO2 10-12% at 100% output)
• Barley	Position 8	(CO2 8-10% at 100% output)
• Triticale	Position 5	(CO2 8-10% at 100% output)

(Rod at hole 40)

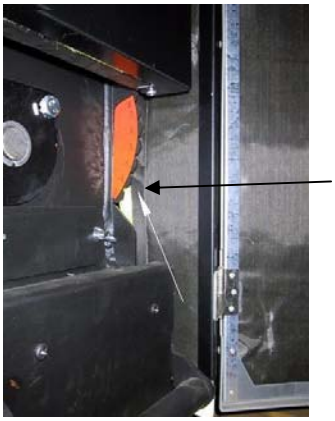
Powercorn 50 Special

• Woodchips	Position 6-7	(> 25% moisture, position 7)
• Pellets	Position 6	(CO2 10-12% at 100% output)
• Miscanthus	Position 6	(CO2 10-12% at 100% output)
• Barley	Position 8	(CO2 8-10% at 100% output)
• Triticale	Position 6	(CO2 8-10% at 100% output)

(Rod at hole 30)

Powerchip 75/100

• Woodchips	Position 4	(> 25% moisture, position 7)
• Pellets	Position 5	(CO2 10-12% at 100% output)
• Miscanthus	Position 5	(CO2 10-12% at 100% output)
• Barley	Position 8	(CO2 8-10% at 100% output)
• Triticale	Position 7	(CO2 8-10% at 100% output)



Setting the air adjuster on the front of the boiler on the right above the small ash box.

8.8 Emptying the ash

PH-08-08-00-00-01-BAEN

The ash boxes have to be emptied at intervals varying from every couple of days to 20 weeks depending on the amount of fuel used, its quality and heat output. The higher the ash content, the shorter the intervals at which the ash must be removed. This is especially the case with lower-quality fuels with a high ash content (e.g. bark) or a significant amount of foreign matter.

The accumulated ash obviously contains the residues of the fuel in concentrated form. If you only use environmentally safe fuels, the grate ash represents a high-quality mineral fertiliser.

Danger: **Glowing embers can cause fires.**

Only remove the ash from the boiler or store it in non-combustible containers.

Procedure

Set the system to "Off" mode and wait until the status display changes to "Off" mode. Unlock the left grate ash box and pull it out to the front. You can then wheel the ash box easily to the emptying point by folding the handlebar upwards. The display on the boiler control panel shows the message "Burner door or ash box open (F01)".

Whenever you empty the grate ash box, please also check the fly-ash box for the heat exchanger cleaner on the right-hand side.

After emptying, replace both ash boxes and lock them in position. The message "Burner door or ash box open (F01)" disappears.

Please pay particular attention to ensuring that they are properly sealed.

On the Programme menu, set the system to the desired heating programme (Normal, Heating, etc.) and the system will start up again.

Resetting the ash warning

If the ash warning appears on the display, it has to be reset on the "User" menu. To do so, go to the "User" menu and select the option "Ash emptied", change the setting to "YES" and press the "OK" button to confirm. The ash warning has now been reset to the maximum number of hours before it is next triggered. The time until the ash warning is issued is preset and can be adjusted to suit the fuel being used by selecting "Ash Warning" on the User menu on the User Level.

9 Cleaning/Care

BS-09-00-00-01-01-BAEN

Note:

For safety reasons you must only carry out servicing and cleaning when the heating system is switched off and disconnected from the mains, and has cooled down.

Servicing work inside the fuel storeroom must only be carried out under the supervision of a second person, who must be outside the storeroom.

There is a risk that accumulation of carbon monoxide in the fuel storeroom could endanger your life.

In particular, you should follow the safety instructions in Section 2.

BS-09-00-00-02-01-BAEN

Cleaning

The sophisticated cleaning system on a GUNTAMATIC heating system means that regular cleaning work is substantially reduced. All that is required is regular emptying of the ash.

The flue must be regularly swept. At the same time, the flue connecting pipe, the flue gas box and the boiler heat exchanger should be cleared of fly-ash.

Depending on how dirty the boiler becomes (which is determined by the quality of the fuel burned), interim cleaning may be required, for which the precise procedure is described in the section "Interim cleaning".

Depending on the load on the heating system, complete cleaning – for which the precise procedure is described in the section "Complete cleaning" – may be required twice a year but should be carried out at least once a year.

If the heating system is subject to exceptionally high loads, more extensive cleaning may be required.

BS-09-00-00-03-01-BAEN

Care

If the casing panels or the controls become dirty, they are best cleaned with a soft, damp cloth. Use only gentle, solvent-free cleaners to dampen the cloth. On no account should solvents such as alcohol, white spirit or thinners be used as they will attack the surface of the boiler.

9.1 Cleaning the fuel store

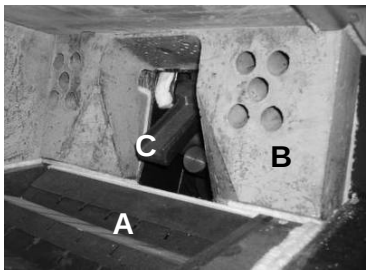
BS-09-01-00-00-01-BAEN

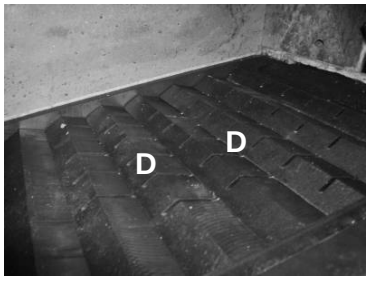
The fuel outfeed auger and the fuel store must be completely emptied (vacuumed out) at least once every 3 years so as to prevent problems with the outfeed system due to dust accumulation.

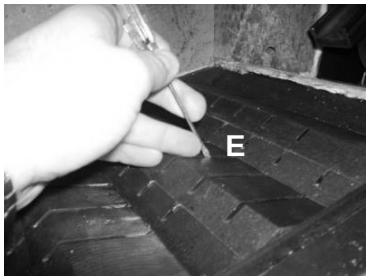
9.2 Interim cleaning

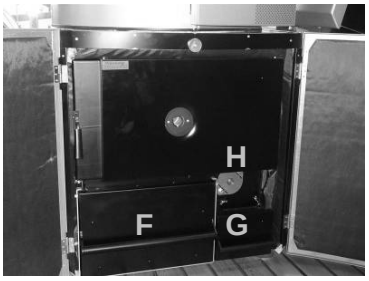
PH-09-02-00-00-01-BAEN

Interim cleaning must be carried out at intervals of between 1 week and 3 months depending on the fuel burned, the quantity of fuel used and how dirty the boiler is, and involves the following steps:









1. Set the system to the programme "**OFF**" (see User settings) and allow it to cool down for at least 1 hour.
2. Remove ash from stepped grate (A) using a fire tool.
3. On the User menu, start the function "**Clean grate**" (see Section) and allow the stepped grate (A) to clean itself for a few minutes.

Caution: **Risk of injury from moving parts.**

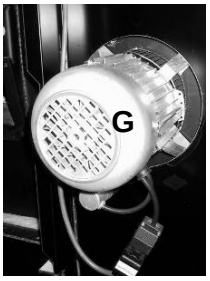
Do not carry out any other cleaning operations while the Clean Grate function is active.

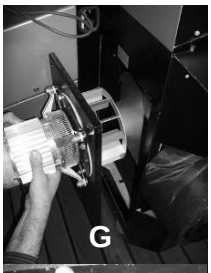
4. Clean out the air slots (D) in the grate using a small flat-bladed implement such as a screwdriver (E) to clear them of combustion residue.
5. Check and clean the top air vents (B) (only on systems with outputs > 50 kW).
6. Check that the fuel spout (C) moves freely (move up and down several times).
7. Pull out the ash boxes on the left (F) and right (G) and empty them.
8. Refit and fasten the ash boxes.
9. Unscrew the inspection cover (H) and remove the ash from underneath the grate.
10. Close and tightly reseal firebox door, ash boxes and inspection cover.
11. Reactivate boiler programme, e.g. "**NORMAL**".

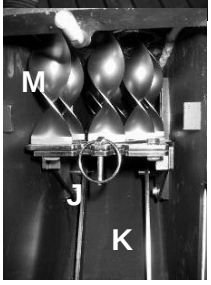
9.3 Complete cleaning

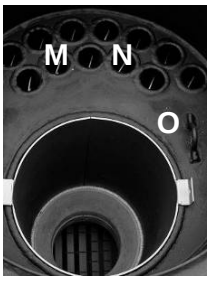
PH-09-03-00-00-01-BAEN

Depending on the load on the system, complete cleaning may be required twice a year but should be carried out at least once a year.









All of the operations described in the section "Interim cleaning" are to be carried out. In addition, complete cleaning also requires the operations listed below.

1. Set the system to the programme "**OFF**" and allow it to cool down for at least 2 hours.
2. Unplug the flue draught fan (G), lift up and remove the cover panel (H) of the flue draught fan, unscrew the wing-nuts on the flue gas box and remove the flue draught fan (G). Lift up and remove the flue gas box adjuster plate (I). Check the fan blade for dirt and clean if necessary.
3. Pull out the locking pin (J) of the heat exchanger cleaning mechanism and pull out the lower end plate (L) of the helix baffles by a distance of 1 cm. Open the heat exchanger inspection cover on the top of the boiler and remove the helix baffles (M) from above.
4. Clean out the heat exchanger tubes (N) using the tube brush supplied, then clean all fly-ash from the top of the heat exchanger (O) and the flue gas box (K).
5. Pull the flue gas sensor (Q) out of the flue connecting pipe, clean it and refit it.
6. Clean the oxygen sensor (P) in the flue pipe socket from the inside using a vacuum cleaner, then brush it with a fine brush and vacuum it once again. On the outside of the flue pipe socket, check that the oxygen sensor is firmly fitted (must not be loose) using a size 22 open-ended spanner. If the sensor is loose, carefully tighten it.
7. Carefully reassemble and refit the boiler components removed and check that all inspection covers are 100% leak-tight.
8. Reactivate boiler programme, e.g. "**NORMAL**".

9.4 Cleaning at end of heating season

PH-09-04-00-00-01-BAEN

If you shut down the boiler for an extended period in the summer months, complete cleaning must be carried out.

Afterwards, all metallic components of the firebox, heat exchanger and flue gas box must be sprayed with an oil-based corrosion-proofing spray.

10 Rectifying faults

PH-10-00-00-00-01-BAEN

Fault	Cause/Function	Remedy
Control panel cannot be switched on	• Power supply disconnected • Fuse blown	• Check external mains plug and/or power supply lead between circuit boards • Check fuse in supply lead and on the control panel circuit board
Smoke escaping into boiler room	• Flue pipe leaking • Flue draught regulator unfavourably positioned • Flue not clear or not providing any draught	• Eliminate leaks • Consult flue installer • Check flue
Heat output too low	• Boiler very dirty • Heating system inadequately balanced • Boiler priority active • Flue draught in chimney flue too low	• Carry out complete cleaning • Balance heating system and heating pumps • Wait until boiler charging has finished or deactivate boiler priority • Increase flue draught in chimney flue if necessary
Detonation	• Detonation is only possible if the firebox is overfilled.	• Carry out complete cleaning or consult engineer if necessary
Difficult to limit output	• Flue draught is too great • Wide demand fluctuations on the part of heating system components	• Re-adjust flue draught regulator • Stagger heating system component demand over time
Overheating **Fault code F04** **STL tripped**	• The amount of heat produced cannot be dissipated – it may be that a heating pump has failed or is not running.	• Ensure heat dissipation by switching on pumps, opening mixer valve or turning on hot water taps. • The cause of the boiler overheating must be identified (if it happens frequently a heating engineer should be called in). • Check fuses on the boiler circuit board
Drive motor too noisy	• Noise transmission	• If necessary, place the adjustable feet of the boiler on rubber pads
Fan too noisy	• Fan is dirty • Fan or blades loose • Noise created by bends or rigid connecting pipe junctions with chimney flue • Fan bearing defective	• Clean fan • Eliminate cause • Fit insulators/sleeves • Order replacement motor

11 Information/Fault messages

PH-11-00-00-00-01-BAEN

No.	Category	Origin	Message	Cancellation	Possible causes
F01	**Note**	Input TKS1 open longer than "t safe" (door switch)	Firebox door or ash box open (F01)	Automatic	Door switch defective, connector faulty, door or ash box open
F03	**Fault**	CO2 check: in "control mode" after time parameter "t reignition" if CO2 is < "CO2 safe" for longer than "t safe min"	Combustion fault Check fuel, grate or air vent (F03)	**Reset** button	No fuel, incorrect air setting, incorrect flue draught, defective oxygen sensor
F04	**Fault**	Boiler temperature BTactual > "BTW"	Boiler temperature too high. Check flue draught and boiler sensor. (F04)	**Reset** button	Boiler or pump malfunction, boiler sensor defective
F05	**Fault**	Flue gas check in "control mode" after time param. "X25" if FGT actual + 0.5xBT actual < "FGTb" - "FGT safe" for longer that "t safe min" (when output betw. 30 and 100%)	Combustion fault Check fuel, grate or air vent (F05)	**Reset** button	No fuel, incorrect air setting, incorrect flue draught, defective flue gas sensor
F06	**Fault**	Fuel spout "ON" for longer than param. "T overfill"	Firebox overfilled Check ash box, fuel spout. (F06)	**Reset** button	Ash box full, fuel spout sticking, oxygen sensor defective
F07	**Fault**	After 2 reignition cycles another reignition condition is present within time window "t reignition" from start of control cycle	Ignition not possible. Check fuel (F07)	**Reset** button	No fuel, ignition fan defective, incorrect air setting, defective oxygen sensor Connection faulty
F08	**Note**	Inactive			
F09	**Note**	Fuel level in storeroom below fill level sensor (optional)	Check fuel store (F09)	Automatic	Fill level sensor (optional) defective, no jumper across terminals 28-30
F10	**Fault**	Fire safety flap fails to open in time "t flap"	Fire safety flap not opening. Check fuel chute. (F10)	**Reset** button	Drop-down blocked, fire safety motor defective (check in test program)
F11	**Fault**	No response from Hall-effect sensor A1 within time param. "t safe A1"	Grate cleaner motor sticking or jammed (F11)	**Reset** button	Ash box full, grate cleaner jammed, grate jammed, motor or lead defective (check in test program)
F12	**Fault**	Inactive			
F13	**Fault**	Overfill cover "OFF" for longer than "t safe": A1=0%	Outfeed conveyor overfilled, check fuel chute (F13)	**Reset** button	Fire safety flap closed, fuel chute overfilled
F14	**Fault**	Inactive			
F15	**Fault**	Fire safety flap fails to close in time "t flap" Opening angle >5%	Fire safety flap not closing. Check fuel chute. (F15)	**Reset** button	Drop-down blocked fire safety motor defective (check in test program)
F16	**Fault**	STL tripped	Warning STL high-temperature limiter tripped (F16)	Press STL, **Reset** button	Boiler or pump malfunction, check fuses, STL test
F17	**Fault**	Maximum number of reversing phases exceeded for G1 excess current	Excess current on drive motor G1 (F17)	**Reset** button	Stoker labouring – foreign object
F18	**Fault**	Maximum number of reversing phases exceeded for A1 excess current	Excess current on drive motor A1 (F18)	**Reset** button	Outfeed auger labouring – foreign object

F19	**Note**	Param. "O2 sensor" or adjusted setting above the limits of param. "mV top" or "mV btm"	Oxygen sensor readings above limits. Test oxygen sensor (F19)	**Reset** button	Oxygen sensor dirty or defective, carry out oxygen sensor test, clean sensor
F21	**Fault**	Length of an oxygen sensor pause longer than "t stop"	Oxygen sensor pause timeout. Test oxygen sensor. (F21)	**Reset** button	Oxygen sensor reading incorrect, connection faulty (carry out oxygen sensor test), check flue draught (FGT too low)
F22	**Fault**	Inactive			
F23	**Fault**	Ash box not emptied within set emptying interval: Fault deactivated = 0h (setting adjustable in system settings)	Empty ash box (F23)	**Reset** button	Ash box not emptied or counter not reset after emptying
F24	**Fault**	Stoker temperature higher than "T stoker"	Stoker temperature too high. Check fuel chute. (F24)	**Reset** button	Fire safety flap not air-tight, service cover on fuel chute not air-tight
F25	**Fault**	Ash bin full or ash extractor motor jammed	Ash auger not moving freely or jammed (F25)	**Reset** button	Ash bin full to brim or foreign object blocking ash duct
F26	**Fault**	Temperature in ash bin higher than "T max bin"	Ash bin temperature too high. Check bin (F26)	**Reset** button	Glowing embers in ash bin Ash extraction system not air-tight (ash bin, vacuum hoses, inspection covers)
F27	**Fault**	Overfill cover "OFF" for longer than "t safe"; A1=0%	Feed auger overfilled – check transfer unit (F27)	**Reset** button	Drop-down overfilled Foreign object
F28	**Fault**	Inactive			
F29	**Fault**	Maximum number of reversing phases exceeded for A2 excess current	Excess current on drive motor A2 (F29)	**Reset** button	Labouring Foreign object
F30	**Fault**	Router module – drive motor G1 not connected	Router module – G1 not connected (F30)	**Reset** button	
F31	**Fault**	Router module – drive motor A1 not connected	Router module – A1 not connected (F31)	**Reset** button	
F32	**Fault**	Router module – drive motor A2 not connected	Router module – A2 not connected (F32)	**Reset** button	
F33	**Fault**	Motor G1 cut-out tripped	Router module – motor G1 cut-out tripped (F33)	**Reset** button	Motor overheated Jammed
F34	**Fault**	Motor A1 cut-out tripped	Router module – motor A1 cut-out tripped (F34)	**Reset** button	Motor overheated Jammed
F35	**Fault**	Motor A2 cut-out tripped	Router module – motor A2 cut-out tripped (F35)	**Reset** button	Motor overheated Jammed

12 Replacing fuses

BS-12-00-00-00-01-BAEN

Fuse function is indicated on the relevant electrical wiring diagrams in the installation instructions.

Danger: **Repair work may only be carried out by authorised technicians.**

Touching live electrical components can cause fatal injury.

Even when the Power switch is "OFF" some components of the system are still live.

Therefore, when carrying out repair work it is imperative that the power supply is disconnected by means of the "mains plug" or a circuit breaker.

Replacing fuses

1. Set the system to the programme "OFF" and allow it to cool down for at least 10 minutes.
2. Switch the Power switch to "0" and unplug the mains plug on the back of the boiler to fully disconnect it from the power supply.
3. Unfasten the controller cover and remove it.
4. Locate the defective fuse with the aid of the wiring diagram in the installation instructions and replace it.
5. Press in the fuse holder 2-3 mm using a medium-sized screwdriver and turn it half a turn anticlockwise to release it. The holder and fuse will then pop out a few mm.
6. Remove the blown fuse and replace with a new one.
7. Insert the fuse holder, press it in 2-3 mm and secure it in position by turning it half a turn clockwise.

13 System log book

BS-13-00-00-00-01-BAEN

LOG BOOK

for

AUTOMATIC WOOD-BURNING BOILER SYSTEMS

as required by the Austrian Technical Directive H118
on Preventative Fire Safety
Please note: a log book is not legally required in the UK however it is recommended that one be kept.

System operator: ……....

……....

……....

System installer: ……....

……....

……....

Boiler system:

Make: ……..…….

Type: ……..……....…….

Year manufactured: …….

Heating output: …….

The following checks are to be carried out regularly on the automatic wood-burning boiler system by the system operator when it is in operation:

13.1 Weekly visual inspection:

Once a week the entire boiler system including the fuel store is to be visually inspected. Any deficiencies identified are to be rectified immediately.

13.2 Monthly checks:

The following monthly checks are to be carried out and, if a log book is maintained, should be recorded in the log book:

- Flue gas passages clean (flue gas channels in boiler, flue connecting pipe and smoke trap)
- Controller functioning properly
- Fault indication/warning system(s) functioning properly
- Combustion air and flue draught fans functioning properly
- Firebox in good order
- Portable fire extinguisher ready for use
- Correct storage of ash
- No combustibles stored in boiler room
- No accumulation of combustible deposits on roof
- Fire safety closures (fire doors self-closing)

13.3 Servicing:

The heating system must be serviced and inspected in accordance with the regional, local and statutory regulations of the country of use.

We recommend that a maintenance contract is taken out providing for annual servicing by an authorised technician.

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Flue gas passages													
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Flue gas passages													
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

If you require more system log book pages, please photocopy them.

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